REMARKS

By this response, claims 1 and 12 have been amended. Claims 1-13 are pending in the application. No new matter has been added by the amendments. It is submitted that the claim amendments do not (a) raise the issue of new matter, (b) raise any new issue that would require further search and/or consideration, or (c) add any additional claims, and the amendments place the application in better condition for appeal. Therefore, it is respectfully submitted that the amendments should be entered. Reconsideration and allowance are respectfully requested in view of the following remarks.

Interview Summary

Applicants thank Examiner Kastler for the courtesies extended to their undersigned representative during the telephonic interview held on November 10, 2005. Applicants' separate record of the substance of the interview is incorporated in the following remarks.

Obviousness-Type Double Patenting

Claims 1-13 stand rejected under the doctrine of obviousness-type double patenting over claims 1-13 of U.S. Application No. 10/726,608 for the reasons stated at pages 2-3 of the Office Action.

Applicants will reconsider the propriety of this rejection, as well as the submission of a Terminal Disclaimer to obviate the rejection, once the Office indicates allowable subject matter in this application.

Rejection Under 35 U.S.C. § 103

Claims 1-13 stand rejected under 35 U.S.C. § 103(a) over over G. Antonelli, "Non-Destructive Condition Assessment of Serviced MCrAlY Coatings" ("Antonelli") or G. Antonelli et al., "Qualification of a Frequency Scanning Eddy Current Equipment for Nondestructive Characterization of new and Serviced High-Temperature Coatings" ("Antonelli et al.") in view of "admitted prior art of the instant disclosure" ("APA"). The reasons for the rejection are stated on pages 3-4 of the Office Action. The rejection is respectfully traversed.

Claim 1, as amended, recites "a method of determining the depletion of Al and Cr of a γ/γ' MCrAlY-coating of a component after use in a high temperature environment, the method comprising: (a) using a component having a γ/γ' MCrAlY-coating in a high-temperature environment in which the γ/γ' MCrAlY-coating exhibits an equilibrium γ/γ'-microstructure, (b) cooling the component to a temperature lower than the operation temperature such that the γ/γ' MCrAlY-coating exhibits a non-equilibrium γ/γ'-microstructure at room temperature, (c) applying a defined annealing heat treatment to the γ/γ' MCrAlY-coated component to transform the non-equilibrium high temperature γ/γ'-microstructure into the equilibrium room temperature microstructure with a α-Cr phase, (d) measuring qualitatively impedance curves or the electrical conductivity and magnetic permeability of the MCrAlY-coating by means of a multi-frequency eddy current system, and (e) determining the Al and/or Cr depletion of the coating from the measured impedance curves or coating conductivity and permeability" (emphasis added). The preamble of claim 1 has been amended to clarify that the coating is on the component during use in the high temperature environment.

As was discussed during the interview, during the use of the claimed component in the high-temperature environment, the γ/γ' MCrAlY-coating exhibits an equilibrium γ/γ'-microstructure. When the component is cooled from the use temperature, equilibrium phases, which are stable at low temperatures, cannot re-precipitate due to the cooling rate, causing the coating to have a non-equilibrium microstructure at room temperature. The inventors determined that the resulting non-equilibrium microstructure of the γ/γ' MCrAlY-coating has a modified electrical conductivity. Consequently, a reliable NDT coating assessment using a multi-frequency eddy current method cannot be obtained.

In light of this problem, the defined annealing heat treatment recited in claim 1 is applied to the γ/γ' MCrAlY-coated component to transform the non-equilibrium high temperature γ/γ'-microstructure into the equilibrium room temperature microstructure having an α-Cr phase. It has been determined that by performing this heat treatment, the Al and/or Cr depletion of the coating is accurately determined by performing steps (d) and (e) of claim 1.

Applicants respectfully submit that the applied art fails to suggest the method recited in claim 1. As was discussed during the interview, Antonelli and Antonelli et al. both disclose a method of measuring the electrical conductivity and magnetic permeability of a γ/β-MCrAlY coating, not of a γ/γ' MCrAlY-coating, using a multi-frequency eddy current system. As explained at page 5, lines 28-29, of the present specification, a γ/β-MCrAlY coating is stable over a wide temperature range. Consistent with this fact, neither Antonelli nor Antonelli et al. suggests using the heat treatment recited in step (c) of claim 1.

As was also discussed during the interview, the "standard heat treatment" described at page 5, line 20, of the present specification is a diffusion heat treatment applied to a new part during the manufacturing process, i.e., before the part is used in service. As such, the diffusion heat treatment is different from the "defined annealing heat treatment" recited at (a) in claim 1, which, is performed after the component has been used in a high temperature environment. Accordingly, the applied art does not provide the required motivation to modify Antonelli or Antonelli et al. to perform the method recited in claim 1, including the defined annealing heat treatment. Thus, the applied art does not support the asserted *prima facie* obviousness. Therefore, claim 1 is patentable.

Claims 2-13, which depend from claim 1, are also patentable. Therefore, withdrawal of the rejection is respectfully requested.

Conclusion

For the foregoing reasons, allowance of the application is respectfully requested. If there are any questions concerning this reply, to expedite prosecution, the undersigned can be reached at the number given below.

Respectfully submitted,

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